

REMARKS

The Office Action dated June 3, 2003 has been received and carefully studied.

The Examiner rejects claims 2-6 under 35 U.S.C. §112, first paragraph, because the specification does not reasonably provide enablement for any nitrocellulose compound which is not nitrocellulose. By the accompanying amendment, the nitrocellulose compounds have been amended to nitroalkanes. Support for the amendment can be found at page 6, lines 10-12 of the specification. It is believed that the amendment overcomes the rejection.

The Examiner rejects claims 2-6 under 35 U.S.C. §112, second paragraph, as being indefinite for various reasons.

The rejection is respectfully traversed.

Claim 2 (as amended) is a product-by-process claim that recites the product (a pyrotechnic composition), and the process used to prepare it (mixing nitrocellulose and a nitroalkane to prepare a gel, the mixing an oxidizing agent, a fuel and a color producing agent, and finally, drying the composition. The specification provides further details of the process, such as at pages 9-10, which are not required to be incorporated into the claim language. Specifically, it is well settled that it is the function of the *specification*, not the claims, to set forth operable proportions, and claims are not rendered indefinite by the absence of such limitations. See *Ex parte Jackson*, 217 U.S.P.Q. 804 (Bd. App. 1982); *In re Johnson and Farnham*, 194, U.S.P.Q. 187 (CCPA 1977); *In re Goffe*, 191 U.S.P.Q. 429 (CCPA 1976). As stated in *In re Goffe*:

"[f]or all practical purposes, the board would limit appellant to claims involving the specific materials disclosed in the examples, so that a competitor seeking to avoid infringing the claims would merely have to follow the disclosure in the subsequently-issued patent to find a substitute. However, to provide effective incentives, claims must adequately protect inventors. To demand that the first to disclose shall limit his claims to what he has found will work or to materials which meet the guidelines specified for 'preferred' materials in a process such as the one herein involved would not serve the constitutional purpose of promoting

progress in the useful arts."

Similarly, in *In re Johnson and Farnham*, the Court stated:

"First, we note that it is the function of the specification, not the claims, to set forth the 'practical limits of operation' of an invention. . . . One does not look to claims to find out how to practice the invention they define, but to the specification. . . . Second, we note that the specification *as a whole* must be considered in determining whether the scope of enablement provided by the specification is commensurate with the scope of the claims. . . . The PTO would limit appellants to claims reciting a sigma* value of at least 0.7. This view is improper because it requires the claims to set forth the practical limits of operation for the invention and it effectively ignores the scope of enablement provided by the specification as a whole."

See also, *In re Skrivan*, 166 U.S.P.Q. 85 (CCPA 1970)("We see no more reason for requiring that appellant recite the specific angles at which the reactants in his process are to be combined than we do for requiring the recitation of flow rates or size of reactor or any other physical operating condition which might be required in order to obtain an operable process. Those limitations deal with factors which must be presumed to be within the level of ordinary skill in the art. We hold that claims need not recite such factors where one of ordinary skill in the art, to whom the specification and claims are directed, would consider them obvious.").

Applicants respectfully submit that one skilled in the art, upon reading applicants claims, will then resort to the specification and find appropriate guidance as to what operable parameters can be used to practice the claimed process. As the foregoing demonstrates, applicants are **not** required to recite such limitations in the claims.

With regard to claims 3 and 5, Applicants believe there is no inconsistency. Claim 3 recites the amounts of nitrocellulose and nitro compound in the gel before other components are added, whereas claim 5 recites amounts of the other components after they are added. With regard to claim

6, claim 6 has been amended to recite that the composition is in the form of a star or lance.

The Examiner rejects claims 2-6 under 35 U.S.C. §103(a) as being unpatentable over Bernardy in view of Swotinsky et al., and as being unpatentable over Goddard et al. and the WPI article. The Examiner states that Bernardy teaches pyrotechnics of color salts and a nitrocellulose binder, and considers it obvious to substitute a similar nitrocellulose binder containing nitro-compounds in view of Swotinsky et al. The Examiner also states that Goddard and the WPI article teach compositions that would be suitable as color preparations from the ingredients therein.

By the accompanying amendment, the claims have been amended to recite that the nitro compound which is not nitrocellulose is a nitroalkane. None of the cited references discloses or suggests the use of nitroalkanes in preparing a pyrotechnic composition as now claimed.

The present invention is characterized by the use of nitroalkanes in combination with nitrocellulose to prepare a gel form material (composition). Other components of a pyrotechnic composition such as the oxidizing agent, the fuel and the color producing agent are added to the gel form material. The gel form material containing the oxidizing agent, the fuel and the color producing agent, is then dried to obtain the final pyrotechnic composition. The use of gel form material in the production of the pyrotechnic composition of the present invention remarkably simplifies the overall manufacturing process, while maintaining the color producing effects of the resulting pyrotechnic composition as comparable to those of the conventional compositions (see page 3 and the Examples in the instant specification).

Bernardy does not disclose or suggest the use of nitroalkanes in manufacturing a pyrotechnic composition.

Swotinsky et al. disclose the use of nitrate esters such as nitroglycerin (column 3, lines 25-31), which is clearly different from nitroalkanes in terms of chemical structure as well as the nature of the

compound. Indeed, the nitro group in nitroalkanes directly substitutes for a hydrogen atom in the alkane moiety, whereas the nitro group in nitro esters is linked to another moiety via an ester bond.

Accordingly, Bernardy and Swotinsky et al., alone or in combination, do not disclose or suggest the present invention as now claimed.


Similarly, Goddard et al. does not disclose or suggest the use of nitroalkanes. Tables I and II at columns 7-8 of Goddard et al. show that nitrocellulose can be used in combination with dinitrotoluene. However, Goddard et al. are silent as to nitroalkanes.

The WPI article discloses the use of nitrocellulose in combination with nitroglycerine (nitrate esters). However, the use of nitroalkanes is not disclosed or suggested.

The remaining prior art is believed to have been properly not relied upon in rejecting any claim.

Reconsideration and allowance are respectfully requested in view of the foregoing.

Respectfully submitted,


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